

GRIDD-70 / GRIDD-40

2.75-INCH / 1.6-INCH LOW-PROFILE ACCESS FLOOR

SECTION 09 69 33

General Notes to the Specifier:

This specification section has been prepared to assist design professionals in the preparation of project or office master specifications. It follows guidelines established by the Construction Specifications Institute, and therefore may be used with most Master Specification Systems with minor editing. Edit carefully to suit project requirements. For 40-Series (Standard) remove sections 1.8.B, 2.2.A.2, and 2.2.B. For 70-Series (Standard) remove sections 1.8.B, 2.2.B.2, and 2.2.A. For 40-Series (Reinforced) remove sections 1.8.A, 2.2.A.1, and 2.2.B. For 70-Series (Reinforced) remove sections 1.8.A, 2.2.B.1, and 2.2.A. Verify that referenced section numbers and titles are correct. Check with manufacturer for any updates to these specifications.

PART 1 - GENERAL

1.1 DESCRIPTION

This section includes the following:

- A. Low-profile access floor system consisting of a series of modular, removable, interchangeable steel base units, corner plates, channel plates, border units and accessories that form an accessible under floor cavity to accommodate electrical, voice and data services.
- B. System shall be gravity held on a structural subfloor system designed to support all loads required by the IBC or local code requirements, whichever is the more stringent.
- C. All flooring system structural components shall be steel. Reinforcing legs shall be structural aluminum.
- D. Maximum height from subfloor to top of access flooring system shall not exceed 2.75 inches.
- E. Floor units shall be removable by one person without the need for tools or special lifting devices.
- F. The low-profile access floor is not part of the grounding system, and is not intended to enclose splices or other types of wiring that are required to be enclosed in raceway as defined in the NEC, Art. 100. All wiring/cabling installed under the floor(s) must conform to the applicable sections of the National Electrical Code (NEC) in effect.
- G. Low-profile access floor system is not intended for use as a duct, plenum or air handling space. As such, non-plenum rated cabling is permitted under the low-profile access floor.

1.2 RELATED SECTIONS

- A. Section 01330—Submittal Procedures
- B. Section 01620—Product Options
- C. Section 01630—Product Substitution procedures

- D. Section 01660—Product storage and handling requirements
- E. Section 01770—Closeout procedures
- F. Section 01780—Closeout Submittals.

Close coordination with Division 1 Sections is required

1.3 ENVIRONMENTAL CONDITIONS

- A. Area to receive and store low-profile access floor materials shall be enclosed and maintained at ambient temperature between 35° to 95° Fahrenheit (F) and relative humidity level between 20% and 80%. All floor components shall be stored at ambient temperature between 50° to 90°F for at least 24 hours before installation begins. All areas of installation shall be enclosed and maintained at ambient temperature between 50° to 90°F and at relative humidity level between 20% to 80%, and shall remain within these environmental limits throughout occupancy.

1.4 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - 1. E-84 - Surface Burning Characteristics of Building Materials
 - 2. E-136 - Behavior of Materials in a Vertical Tube Furnace at 750° C
 - 3. A-1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
 - 4. A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 5. E2322 - Standard Test Method for Conducting Traverse and Concentrated Load Tests on Panels used in Floor and Roof Construction
- C. Underwriters Laboratory (UL):
 - 1. 514A - Standard for Metallic Outlet Boxes
- D. International Building Code (IBC)
- E. International Code Council - Evaluation Services (ICC-ES)
 - 1. AC 151 Fixed-height, Low-Profile, Raised Floor Systems

1.5 PERFORMANCE CERTIFICATION

- A. Product tests shall be witnessed and/or performed by an independent ISO-17025 / ISO-17020 engineering and testing laboratory based in the U.S. with specific accreditation in AC-151, AC-175 and/or AC-300 and a minimum of two years experience inspection and/or testing access floor components.

1.6 COUNTRY OF ORIGIN & PRODUCT MARKING

- A. Access floor materials shall comply with the provisions outlined in Federal Acquisition Regulation Subpart 25.2 “Buy American Act” - Construction Materials.
- B. Low-profile access floor base units shall be marked with country-of-origin.

1.7 DESIGN CRITERIA

- A. Provide access flooring systems capable of withstanding uniform and concentrated loads as set forth in Table 1607.1 of the IBC or local code requirements, whichever is the more stringent, as determined by testing manufacturer's products.

1.8 PERFORMANCE REQUIREMENTS

A. Standard Base Units / Channel Plates / Corner Plates

1. Concentrated Live Load Performance Over an Area of 6.25 square feet ($2\frac{1}{2}' \times 2\frac{1}{2}'$): Minimum concentrated live-load capacity of low-profile access floor system, in pounds (lbs), when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but with a factor of safety of five shall not be less than:
 - a. 2,000 lbs
2. Concentrated Live Load Performance Over an Area of 1 square inch ($1'' \times 1''$): Minimum concentrated live-load capacity of low-profile access floor system, in pounds per square inch (psi), when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but at 0.1" deflection and 0.06" set and a factor of safety of two shall not be not less than:
 - a. 200 psi
3. Uniform Live Load Performance over Entire Floor Area: Minimum uniformly-distributed-live load capacity of low-profile access floor system, in pounds per square foot (psf), shall conform to the IBC or local code requirements, whichever is the more stringent, but at maximum deflection of L/240 or 0.15" and 0.06-inch set, shall not be less than:
 - a. 100 psf

B. Reinforced Base Units / Channel Plates / Corner Plates

1. Concentrated Live Load Performance Over an Area 6.25 square feet ($2\frac{1}{2}' \times 2\frac{1}{2}'$): Minimum concentrated live-load capacity of low-profile access floor system when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but with a factor of safety of five shall not be less than:
 - a. 3,000 lbs
2. Concentrated Live Load Performance Over an Area of 1 square inch ($1'' \times 1''$): Minimum concentrated live-load capacity of low-profile access floor system when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but at 0.1" deflection and 0.06" set and a factor of safety of two shall not be not less than:
 - a. 300 psi
3. Uniform Live Load Performance over Entire Floor Area: Minimum uniformly-distributed-live load capacity of low-profile access floor system shall conform to the IBC or local code requirements, whichever is the more stringent, but at maximum deflection of L/240 or 0.15" and 0.06-inch set, shall not be less than:
 - a. 250 psf

C. All Base Units / Channel Plates / Corner Plates:

1. Floor assembly: Floor assembly to be rigid, free of vibration, rocking parts, rattles and squeaks.
2. Air Leakage: Air space below the finished floor assembly does not serve as a plenum. As such no limits are placed on air leakage through the joints between base units, channel plates and corner plates and around the perimeter of the floor assembly.
3. Seismic: All load carrying storage units and other heavy equipment shall be anchored directly to the existing structure so as to resist design seismic loads. All attachments to the access flooring system shall be engineered by others.
4. Exposed Metal: Exposed metal shall not be allowed at the wearing surface of the floor.
5. Flame Spread Rating: Flame spread and smoke development rating of low-profile access floor system when tested per ASTM E-84, shall conform to the IBC or local code requirements, whichever is the more stringent, but shall not be less than:
 - a. Class A Rating (Flame Spread < 25, Smoke Development < 75).
6. Combustible Rating: Combustible rating of low-profile access floor system when tested per ASTM E-136, shall conform to the IBC or local code requirements, whichever is the more stringent, but at a minimum shall be classified as:
 - a. Non-Combustible.
7. Corrosion Resistance: Galvanizing thickness rating of metallic outlet boxes and base units, corner plates, channel plates and border units when tested per UL514A, shall conform to the IBC or local code requirements, whichever is the more stringent, but shall not be less than:
 - a. Galvanized Coating – G40 Minimum (Per ASTM A-653)

1.9 SUBMITTALS

Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

- A. Samples: Low-profile access floor base unit, channel plate and corner plate.
- B. Shop Drawings:
 1. Floor panel layout, including ramp location (if applicable).
 2. Detail components of assembly and edge details.
- C. Manufacturers' Literature and Data: Access floor.
- D. Manufacturers' Certificates: Flame spread rating.
- E. Floor System Test Reports: Submit test reports or Specification Summary Sheets, from an independent testing laboratory satisfactory to the Architect, attesting that the floor system proposed for installation meets all specified requirements. Submit test reports or Specification Summary Sheets with shop drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. FreeAxez Manufacturing LLC
1810 Underwood Blvd
Delran, NJ 08075

(856) 764-0400

(856) 764-0700 fax

System Designation: FreeAxez 70 & FreeAxez 40

- B. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 COMPONENTS

A. GRIDD-40 (1.6")

1. Standard GRIDD-40 Components – ASTM A653 Galvanized Steel
 - a. Base Unit/FA-4001 - 14.6"x14.6"x1.6". All steel, smooth surfaces with integral support legs.
 - b. Corner Plate/FA-4002 - 7.8"x7.8".
 - c. Channel Plate/FA-4003 - 11.7"x5.0".
 - d. Under-Sheet/FA-4016 (3.5 ft x 30 ft), FA-4036 (3.5 ft x 300 ft), FA-4096 (3.5 ft x 900 ft)
2. Reinforced FA-40 Components – ASTM A653 Galvanized Steel
 - a. Base Unit/FA-4001 - 14.6"x14.6"x1.6". All steel, smooth surfaces with integral support legs.
 - b. Corner Plate/FA-4002 - 7.8"x7.8" with four 0.625"-diameter 2011-T3 aluminum reinforced support legs/FA-4110 secured in offset pre-punched corner openings.
 - c. Channel Plate/FA-4003 - 11.7"x5.0" with two 0.625"-diameter 2011-T3 aluminum reinforced support legs/FA-4110 secured in offset pre-punched center openings.
 - d. Under-Sheet/FA-4016 (3.5 ft x 30 ft), FA-4036 (3.5 ft x 300 ft), FA-4096 (3.5 ft x 900 ft)
3. GRIDD-40 Border Components
 - a. Half Unit/FA-4101
 - b. Half Channel/FA-4102
 - c. L-type Border/FA-4103
 - d. End Cover/FA-4104
 - e. Reinforcing Band/FA-4105
 - f. Trapezoid Plate/FA-4106
 - g. L-type Trapezoid/FA-4107
 - h. Jumbo Plate/FA-4108
4. GRIDD-40 Optional Components
 - a. Slope 1:12 (steel)/FA-4419- (Ramp)
 - b. External-angle slope/FA-4419EX (Ramp)
 - c. Internal-angle slope/FA-4419IN (Ramp)
 - d. Frame (stainless)/FA-4206 (Edge Riser front closure) – Where exposed to view.
 - e. Corner Frame (stainless) – 6-inch /FA-4207
 - f. Corner Frame (stainless) – 16-inch/FA-4208
 - g. Frame end cap (stainless)/FA-4209 (Edge Riser end closure) – Where exposed to view.
 - h. Outlet Cover/FA-4212
 - i. Wiring outlet/FA-4214 (Corner plate with oval grommet)
 - j. Wiring outlet/FA-4215 (Channel plate with oval grommet)
5. Ramps: Manufacturer's standard ramp construction of width and slope indicated (minimum 1:12). Custom ramps with slope 1:20 available upon request.

B. GRIDD-70 (2.75")

1. Standard GRIDD-70 Components – ASTM A653 Galvanized Steel
 - a. Base Unit/FA-7001 - 14.6"x14.6"x2.75". All steel, smooth surfaces with integral support legs.
 - b. Corner Plate/FA-4002 - 7.8"x7.8".
 - c. Channel Plate/FA-4003 - 11.7"x5.0".
 - d. Under-Sheet/FA-4016 (3.5 ft x 30 ft), FA-4036 (3.5 ft x 300 ft), FA-4096 (3.5 ft x 900 ft)
2. Reinforced GRIDD-70 Components – ASTM A653 Galvanized Steel
 - a. Base Unit/FA-7001 - 14.6"x14.6"x2.75". All steel, smooth surfaces with integral support legs.
 - b. Corner Plate/FA-4002 - 7.8"x7.8" with four 0.625"-diameter 2011-T3 aluminum reinforced support legs/FA-7110 secured in offset pre-punched corner openings.
 - c. Channel Plate/FA-4003 - 11.7"x5.0" with two 0.625"-diameter 2011-T3 aluminum reinforced support legs/FA-7110 secured in offset pre-punched center openings.
 - d. Under-Sheet/FA-4016 (3.5 ft x 30 ft), FA-4036 (3.5 ft x 300 ft), FA-4096 (3.5 ft x 900 ft)
3. GRIDD-70 Border Components
 - a. Half Unit/FA-7101
 - b. Half Channel/FA-4102
 - c. L-type Border/FA-7103
 - d. End Cover/FA-7104
 - e. Reinforcing Band/FA-7105
 - f. Trapezoid Plate/FA-4106
 - g. L-type Trapezoid/FA-4107
 - h. Jumbo Plate/FA-4108
4. GRIDD-70 Optional Components
 - a. Slope 1:12 (steel)/FA-7433- (Ramp)
 - b. External-angle slope/FA-7433EX (Ramp)
 - c. Internal-angle slope/FA-7433IN (Ramp)
 - d. Frame (stainless)/FA-7206 (Edge Riser front closure) – Where exposed to view.
 - e. Corner Frame (stainless) – 6-inch /FA-7207
 - f. Corner Frame (stainless) – 16-inch/FA-7208
 - g. Frame end cap (stainless)/FA-7209 (Edge Riser end closure) – Where exposed to view.
 - h. Outlet Cover/FA-7212
 - i. Wiring outlet/FA-4214 (Corner plate with oval grommet)
 - j. Wiring outlet/FA-4215 (Channel plate with oval grommet)
5. Ramps: Manufacturer's standard ramp construction of width and slope indicated (minimum 1:12). Custom ramps with slope 1:20 available upon request.

2.3 ELECTRICAL BOXES

- A. Provide electrical boxes to make floor assembly with openings perform the same as continuous base units, channel plates and/or corner plates. Fit small openings with manufacturer's standard grommet.

2.4 TOLERANCE

- A. Construct base units, channel plates and corner plates to be uniform in face dimensions within the following tolerances:
 - 1. Base units shall be 14.567" x 14.567" \pm 0.015" (370 mm by 370 mm \pm 0.38mm),
 - 2. Channel plates shall 11.732" x 4.961" \pm 0.015" (298 mm by 126 mm \pm 0.38mm),
 - 3. Corner plates shall be 7.795" x 7.795" \pm 0.015" (198 mm by 198 mm \pm 0.38mm).
 - 4. All parts to be square within a tolerance of \pm 0.015-inches (\pm 0.38 mm) and exhibit flatness within a tolerance of \pm 0.02-inches (\pm 0.5 mm).
- B. Construct base units, channel plates and corner plates from material of uniform thickness within the following tolerances:
 - 1. 0.035" \pm 0.002"
 - 2. 0.045" \pm 0.002"
 - 3. 0.060" \pm 0.002"
- C. Individual parts to be easily placed and removed, without disturbing adjacent assembly, by one person with no special tools.

PART3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation, the General Contractor shall provide subfloors that are dry and free of any surface irregularities that could reasonably be anticipated to adversely affect access flooring system appearance or performance.
- B. Minimum Subfloor Flatness (FF=25) and Subfloor Levelness (FL=20) shall be achieved by others.
- C. The General Contractor shall provide clear access to subfloor area free of construction debris and other trades throughout installation of access floor system.

3.2 PREPARATION

- A. Verify dimensions on contract drawings, including level of interfaces including abutting floor, ledges and doorsills.
- B. Complete any necessary subfloor preparation, and vacuum clean subfloor to remove dust, dirt, and construction debris before beginning installation.
- C. Commencement of work by installer is acceptance of subfloor.

3.3 INSTALLATION

- A. Schedule pre-installation conference between manufacturer's representative, installer, contractor's representative and any applicable trade representatives to review: floor starting location, schedule, availability of materials, installation personnel, equipment and facilities needed to make progress and avoid delays. In addition, review connections with mechanical and electrical systems.
- B. Installation shall only be performed by trained installers with experience in installation of the low-profile access floor system under supervision of access-flooring manufacturer's authorized representative and in accordance with the manufacturer's installation instructions.

- C. Electrical boxes and openings shall be established so that work does not interfere with the integrity of the flooring system (if applicable).
- D. Installation of access floor shall be coordinated by the General Contractor with other trades to maintain the integrity of the installed system. In particular, General Contractor shall manage schedule to ensure work by trades requiring vehicular traffic exceeding floor capacity is completed prior to installation of low-profile access floor.
- E. During installation, all traffic on access floor shall be controlled by access floor installer such that the floor capacity is never exceeded.
- F. Access floor installer shall keep the subfloor broom clean as installation progresses.
- G. Under-sheet shall be placed without wrinkles.
- H. Layout of low-profile access floor system shall be according to manufacturer's installation instructions.
- I. Ramps shall be secured per manufacturer's installation instructions.
- J. Acceptance: General contractor shall accept floor in whole or in part prior to allowing use by other trades.

3.4 PROTECTION

- A. After installation of low-profile access floor, all traffic on low-profile access floor shall be controlled by the General Contractor. No traffic shall be permitted on the access floor that exceeds the published floor capacity.
- B. Provide minimum ¾-inch plywood sheathing over all partially- or fully-completed floors per manufacturer's requirements, before approved construction or delivery traffic is permitted travel on the access floor. It is the General Contractor's responsibility to ensure that wheel loads do not exceed the floor capacity.

3.5 EXTRA STOCK

- A. Furnish extra materials described below that match product installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Base Units: 2%
 - 2. Corner Plates: 2%
 - 3. Channel Plates: 2%

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